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ABSTRACT

This paper proposes a view of the communication/cognitive psychology relationship which attempts to reclaim the concept of "communication" as being fundamental to the understanding of communication phenomena and thus to the discipline of communication studies. This view is presented in the paper as an alternative to a view which conceptualizes communication as an extension of psychology. The paper offers an account of the relationship between the two disciplines in which an understanding of human cognition must presuppose the ability of people to communicate. In view of the current ferment with respect to the identity of the communication discipline, the paper argues that the concept of communication can, and must, be reclaimed by the communication discipline as its central mode of explanation. (Contains 52 references.) (Author/SR)

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THE PSYCHOLOGY OF COMMUNICATION OR A COMMUNICATIVE THEORY OF PSYCHOLOGY? RECLAIMING "COMMUNICATION" AS THE CENTRAL MODE OF EXPLANATION FOR COMMUNICATION STUDIES

by

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THE PSYCHOLOGY OF COMMUNICATION OR A COMMUNICATIVE THEORY OF PSYCHOLOGY? RECLAIMING "COMMUNICATION" AS THE CENTRAL MODE OF EXPLANATION FOR COMMUNICATION STUDIES

Abstract

A view of the communication/cognitive psychology relationship is proposed which attempts to reclaim the concept of "communication" as being fundamental to the understanding of communication phenomena and thus to the discipline of communication studies. This is presented as an alternative to a view which conceptualizes communication as an extension of psychology. An account of the relationship between the two disciplines is offered in which an understanding of human cognition must presuppose the ability of people to communicate. In view of the current "ferment" with respect to the identity of the communication discipline (see Dervin, Grossberg, O'Keefe, and Wartella, 1989; "Ferment in the Field," 1983), the concept of communication can, and must, be reclaimed by the communication discipline as its central mode of explanation.

In 1929, John Dewey made the following comments about the relationship of language and mental states:

> Empirical thinkers have rarely ventured in discussion of language beyond reference to some peculiarity of brain structure, or to some psychic peculiarity, such as tendency to "outer expression" of "inner" states. Social interaction and institutions have been treated as products of a ready-made specific physical or mental endowment of a self-sufficing individual, wherein language acts as a mechanical go-between to convey observations and ideas that have prior and independent existence (Dewey, 1929/1958, p. 169).

The view that language acts as a "mechanical go-between" which conveys "observations and ideas that have a prior and independent existence" continues to be highly prevalent in contemporary communication theory. As a result, the discipline of communication has come to stand in a particular relationship with the discipline of cognitive psychology. Using Dewey's terminology, one can say that the psychological perspective takes as its domain the "specific physical or mental endowment of a self-sufficing individual" (Dewey, 1929/1958, p. 169) or, in other words, the abilities of the human individual to think, perceive, and act on information derived from the environment and from memory. Communication studies, on the other hand, problematizes the characteristics of the "mechanical go-between" (Dewey, 1929/1958, p. 169) which must presuppose the presence of at least two such individuals between which an act of communication can take place. Whereas cognitive psychology problematizes the processes by which an action is produced by an individual, communication focuses upon the process through which interaction is made possible and maintained. Thus communication

becomes a "tendency to "outer expression" of "inner" states" (Dewey, 1958, p. 169).

For many people, particularly those outside of the communication field, this conception of communication and psychology is simply common-sense. Gergen (1991) argues that the notion that people have ideas, formed in the mind, which are then conveyed to others by a process of communication is pervasive in a Western modernist culture. In the academic domain, however, the prevalence of this common-sense view also serves to place communication studies in a secondary position with respect to cognitive psychology in the explanation of human communication phenomena. It perpetuates the idea that an understanding of the principles of psychological functioning is primary to an adequate understanding of the human ability to communicate. The act of human communication, conceived in terms such as "encoding," "decoding," "intention," "interpretation," and "transmission," is conceptualized as a result of the ability to think, act, and process information. Communication becomes reduced to and dependent upon psychological processes which are the domain of another discipline.

As a discipline, communication researchers should be wary of such a characterization. Dewey (1927/1973) referred to it as a "false psychology" which effectively blocked the development of a useful and appropriate theory of communication. Dewey's claim may still have validity for the contemporary study of communication. Internally, the field of communication has been referred to as

"fragmented" (see Delia, 1987) and the development of a "general theory of communication" has not been forthcoming (see Berger, 1991). Academics from outside the field do not have a clear idea what the field of communication addresses. Zarefsky (1993) points out how this leads to problems of perception between communication departments and college administrations. He writes that

> almost without exception, when the review committee met with a dean or provost, the conversation went something like this. "I know we're supposed to have a fairly good department here," the administrator would claim, "but I can't figure out what they do" (Zarefsky, 1993, p. 2).

Peters (1986) makes the broader claim:

> Anybody who has had anything to do with the field knows that most people, including intelligent people who have been around universities for years, have no idea what in the world communication(s) means as a field of study. The idea that it is a separate, self-conscious field at all often comes as a surprise" (Peters, 1986, p. 88).

Following the philosophy of Dewey, communication must be reclaimed as the central mode of explanation of communication studies. In its most radical form, this would mean severing the established link between communication and cognitive psychology and developing communication, rather than mind, as the basis of the field. To this end, this paper addresses the following questions: Where did the psychology/communication viewpoint originate? Why was it adopted? What are the alternatives? The historical bases of the communication/psychology relationship are examined and an alternative characterization of that relationship offered in which the study of communication is not dependent upon a psychological account of human information processing.

Information Theory and Communication Research

It is well documented in historical accounts of the communication field that the appearance of a distinct discipline of communication studies was institutionalized in the period from 1940-1965 (see Delia, 1987; Hardt, 1992; Peters, 1986; Robinson, 1988; Rowland, 1988). Crucial to these accounts is the appearance, in 1949, of Claude E. Shannon's The Mathematical Theory of Communication (Shannon and Weaver, 1949). Rogers and Valente (1993) claim that:

> Shannon's information theory provided the root paradigm for the field of communication theory and research. It is no accident that the first communication research institutes and the first doctoral degree-granting programs in U.S. universities began very shortly after publication of Shannon's information theory (p. 50).

Shannon describes his influential concept of communication within information theory in the following manner:

> By a communication system we will mean a system of...essentially five parts: 1. An information source which produces a message or sequence of messages to be communicated to the receiving terminal....2. A transmitter which operates on the message in some way to produce a signal suitable for transmission over the channel....3. The channel is merely the medium used to transmit the signal from transmitter to receiver....4. The receiver ordinarily performs the inverse operation of that done by the transmitter, reconstructing the message from the signal...5. The destination is the person (or thing) for whom the message is intended (Shannon and Weaver, 1949, pp. 33-34).

Weaver's "Introductory Note on the General Setting of the Analytical Communication Studies" appears as an introduction to Shannon's mathematical treatise and discusses the way in which a human communication theory could be developed from Shannon's theorems. Weaver suggests that Shannon's communication theory can

be applied in the broad sense to include "all of the procedures by which one mind may affect another" (Shannon and Weaver, 1949, p. 3). Thus the "information source" and "destination" components of Shannon's model can be used as metaphors for minds. Communication becomes an explanation whereby information is transferred from one mind to another via processes of transmission, reception, and noise.

Wilbur Schramm was instrumental in adapting Shannon's model as the foundation of the fledgling field of communication research (see Rogers and Valente, 1993) and with it the claim that communication was a process whereby "one mind may affect another" (Shannon and Weaver, 1949, p. 3). Thus, for Schramm (1954), communication could be conceptualized as follows:

> A source may be an individual (speaking, writing, drawing, gesturing) or a communication organization (like a newspaper, publishing house, television station or motion picture studio). The message may be in the form of ink on paper, sound waves in the air, impulses in electric current, a wave of the hand, a flag in the air, or any other signal capable of being interpreted meaningfully. The destination may be an individual listening, watching, or reading; a member of a group, such as a discussion group, a lecture audience, a football crowd, or a mob; or an individual member of a particular group we call the mass audience, such as the reader of a newspaper or a viewer of television (Schramm, 1954, cited in Ruben, 1984, p. 47).

This view, and others like it (e.g. Berlo, 1960; Lasswell, 1948), was to structure communication research for the following decade (see Delia, 1987) and provided the basis of the persuasion and media effects paradigm, exemplified by Klapper (1949), Hovland (1953), and the hypodermic model tradition (see Bineham, 1988), which would provide the dominant image of communication research

during that period. The question arises as to why this particular model of "one mind affecting another" should have proved so influential at this point in the history of the field of communication. At least part of the answer lies in the mathematical rigor and subsequent scientific credibility that Shannon's work offered.

Shannon developed the mathematical theory of communication at Bell Labs as part of a research program dealing with the problem of cryptography (Rogers and Valente, 1993, pp. 38-39). The project was concerned with the transformation of vocal and written messages into a coded form so that enemy forces could not understand them. As such, Shannon's work was mathematical and applied in nature. Weaver's interpretation of Shannon's model strongly implies that it may well represent a covering law of communication. The model utilizes the notion of entropy, a measure of randomness and the tendency of physical systems to become less and less organized. Weaver quotes Eddington's remark that "the law that entropy always increases-the second law of thermodynamics-holds, I think, the supreme position among the laws of nature" (Shannon and Weaver, 1949, p. 12). Weaver exploits Eddington's claim by saying that "when one meets the concept of entropy in communication theory, he has a right to be rather excited-a right to suspect that one has hold of something that may turn out to be basic and important" (Shannon and Weaver, 1949, p. 13). This claim is not developed further by Weaver, but nevertheless offers a tantalizing possibility that Shannon's

model of communication may be describing a fundamental process of communication describable in a way analogous to the descriptions of physics.

Shannon's theory and Weaver's interpretation, coupled with Schramm's ability to institutionalize, provided a rigorous and well defined framework for the institutionalization of communication research. They provided a structure of the fundamental components of a communication process that could be mechanistically and precisely described in terms of encoders, transmitters, receptors, and decoders. Shannon's theorems described in great detail the information that flowed through it. Communication theorists could now analyze messages quantitatively in terms of their predictability, uncertainty, and redundancy. Finally, the model held the promise of a covering law; a generalization that applied to and could explain all instances of the manifestation of communication phenomena. The process by which "one mind may affect another" (Shannon and Weaver, 1949, p. 3) offered the great promise for the development of a new academic discipline of communication based in a social scientific tradition

Information Theory and Cognitive Psychology

The appearance of the information theory conception of communication significantly influenced the emergence of the model of human information-processing that formed the basis of the new field of cognitive psychology (see Miller, 1983a; Pylyshyn, 1983). The principles of information theory, cybernetics, and the

development of the digital computer provided psychologists with a rich set of metaphors with which to conceptualize cognitive functions. They offered a framework which enabled psychologists to talk about mentalistic entities like memory and goals, and yet remain scientific. A strictly behaviorist psychology could not admit of a notion of purposeful behavior. After all, how could purpose be observed or objectively measured? To a behaviorist, purpose is a metaphysical term which only intuitively explains the end result of a complex series of reflex arcs which originated somewhere in the environment. One could, for example, demonstrate that a rat would run a maze for a piece of food, but one could not objectively demonstrate that the rat had a mental goal or purpose which drove that behavior. One could posit and verify an association between the food (stimulus) and the running behavior (response) on the basis of an innate reflex concerning hunger, but not that the rat somehow intended to eat the food. The development of Wiener's (1948) theory of cybernetics offered an alternative to this conception. Wiener demonstrated empirically that a cybernetic system such as a thermostat or a heat seeking missile are systems that operate on the basis of goals. This implied that the system does not strictly act on the basis of current stimuli, but on the basis of anticipated future stimuli. For example, the behavior of a heat seeking missile is based not on the response to a single stimulus, but on a stream of feedback that the system compared with a desired end state. If the information coming in does not correspond with the desired

state, the system will operate on the basis of this mismatch between states. The system's behavior cannot be considered merely as a passive response. The system is not reacting with its environment, it is interacting with it.

Wiener's theory allows one to speak of mechanical cybernetic systems acting on the basis of internalized goals. By adopting the cybernetic framework as a basis for understanding human behavior, it is now possible to talk about behavior with respect to goals, not in a metaphysical manner based on subjective introspection, but in a rigorous and objective manner based on the action of real and testable cybernetic systems.

The development of the digital computer provided another sophisticated metaphor for legitimately conceptualizing mentalistic states. For example, computers had memories. They could interpret information with respect to internalized rules contained in a computer program and generate meaningful responses. In fact, the engineers themselves were having to employ mentalistic terms to describe what their systems were doing. As Miller (1983b) points out:

> During the Second World War, technological advances occurred that made it possible to talk materialistically about much more complicated kinds of material things. Suddenly, engineers were using the mentalistic terms that soft-hearted psychologists had wanted to use but had been told were unscientific...The engineers showed us how to build a machine that has memory, a machine that has purpose, a machine that plays chess...and so on. If they can do that, then the kind of things they say about machines, a psychologist should be permitted to say about a human being (p. 23).

The new principles and insights derived from cybernetics, computer science, and information theory offered a scientific vocabulary for describing mental states and, as a result, the conception of the human individual as information processor came into being. The human individual became conceptualized as a limited capacity information channel with a serial set of processing stages which could take information from the environment and process it, store it, manipulate it, and so forth. The individual could then give out a meaningful response on the basis of that processing (mental states or "the black box"). Loftus and Loftus (1976) describe the information processing perspective as follows:

> The theoretical framework...views the processing of information as the principal mental task engaged in by human beings. A person is seen as constantly taking in information from the environment and then storing, manipulating, and recoding portions of this information in a succession of memory stages (p. xi).

Therefore, according to Neisser (1967):

> The task of the psychologist trying to understand human cognition is analogous to that of a man trying to discover how a computer has been programmed. In particular, if the program seems to store and reuse information, he would like to know by what 'routines' or 'procedures' this is done (p. 6).

In the 1950s and 60s, information processing models were developed around single channels of limited processing capacities which were split into discrete and linear processing stages. Perhaps the classic example of this approach is Broadbent's (1958) filter model of attention which embodied all of these features. As the computer hardware has advanced, different types

of processing were developed, notably parallel processing; the capacity to process many pieces of information simultaneously. Since parallel processing could be demonstrated on a machine, then it was conceivable to describe human information-processing in terms of this capacity. The ultimate isomorphic model is the development of an intelligent machine, an empirical structure that can simulate cognitive functions and behaviors that would be considered intelligent when carried out by humans (see Searle, 1984). Artificial intelligence will not only be a metaphor of human cognitive functioning, it will also be, some claim, an actual physical representation of it.

The information processing model has proved to be a very powerful heuristic tool for the study of human behavior. For example, if it is a given that people are limited capacity processors, then it is valid to ask such questions as "what are the limits of that capacity?" or, "how is incoming information from the environment selected and rejected for processing by finite resources?" If the computer analogy that selection and processing operate on the basis of rules is also accepted, then one can ask what are the psychological equivalents which enable humans to do the same thing? Computer and information metaphors are becoming so dominant in this area that a new discipline is evolving, that of cognitive science (see Craig, 1979; Gardner, 1987), which aims to combine the insight of cognitive psychology, artificial intelligence, and linguistics.

Some Limits of the Linear/Information Processing Perspective

The view that the mind as information-processor (characterized in communication research as "information source" and "destination") is central to acts of human communication has been perpetuated and reinforced by the parallel developments of communication research and cognitive psychology. However, the information processing account has been subject to critique which has opened up the possibilities for a communication-oriented (as opposed to individual centered) account of communication phenomena.

One basis of this critique is the identification of experimental results which are contrary or problematic to the predictions of the information-processing model, a situation referred to by Kuhn (1970) as an anomaly. An example of such an anomaly is the evidence generated by research into the phenomena of subliminal perception (see Bornstein and Pittman, 1992; Dixon, 1971, 1981). The information processing account of sensory memory (see Loftus and Loftus, 1976) asserts that visual information from the environment is momentarily stored on the retina as an icon, which is subsequently subject to higher order processing. If a stimulus is presented to a subject at great speed, say one hundredth of a second, and immediately after a pattern mask of random dots is presented, the sensory memory model would predict that the subsequent masking would erase the retinal icon of the original stimulus before any higher order processing would have had chance to take place. The subject would have no knowledge of

that stimulus since that information had been denied any access to cognitive processing systems. Experiments by Marcel (1983), however, seem to demonstrate that stimuli presented as above do get some degree of processing despite extremely brief presentation and subsequent pattern masking. Despite the subjects' reporting that they had no conscious awareness of the stimuli, they could still make significant (above chance) guesses as to what the stimulus might have been or, more significantly, make guesses which, although not specifically correct, were still semantically related to that stimulus.

It is this kind of evidence which constitutes the apparent paradox of subliminal perception. But it is only a paradox if the findings are interpreted with respect to the information processing model. The traditional model says that the processing system is of limited capacity, it can only do so much at once. In this model, subliminal perception makes no sense because: (a) it implies that information not available to conscious recall is processed outside of consciousness (traditional serial stage models say it is irretrievably lost), (b) it implies that information can be perceived outside of awareness and can have subsequent effects on conscious perceptions and behaviors, (c) it directly contradicts the model of momentary icons in sensory memory, (d) it implies that all incoming information is processed to some degree, even information outside our awareness, and (e) it implies the existence of a qualitatively different "preconscious processing system" (Dixon, 1981) about which very

little is known with present models (Dixon, 1971; Lambert, 1985).

Not surprisingly, the evidence from research into this area has met with a great deal of skepticism by members of the mainstream academic community (see Holender, 1986). The main reason for this is that it represents such a challenge to the assumptions of the established paradigm. Because such evidence is so difficult to embrace with the traditional concepts, the opponents of subliminal perception have chosen to criticize and refute the damaging evidence (usually on methodological grounds) rather than change the paradigm.

Glass, Holyoak, and Santa (1979) have raised similar experimental doubts about the stage approach of the information processing model. As more evidence is accrued on the nature of these stages, it becomes increasingly difficult to differentiate between them. For example, at what point does a stimulus cease to be an icon in sensory memory and become a processed item in short term memory? Similarly, at what point can an item be thought of as having status in long term memory? The usual differentiating criteria between the stages is time, but the time a stimulus spends in one system before progressing to another is becoming increasingly arbitrary; so much so that Glass and his colleagues have questioned the usefulness of having concepts of separate stages at all.

The reason for these problems lies in the basic assumptions of the information processing model itself. As Glass, Holyoak, and Santa (1979) point out:

> sharp divisions cannot be drawn between separate processing stages, because the core of cognition is not a passive long term memory, but an active processor that interacts with the environment. According to this view, tracing the flow of information from peripheral to central stages does not do justice to the interactive nature of the system (p. vi).

The parallel with communication theory is striking! The stage model of information processing is working with the same assumptions as the information theory model of communication: information processing, like communication, is a one-way, linear, and serial stage process. Some psychologists are realizing that having this model as a foundation creates problems when trying to account for what people actually do. As Thayer (1979) points out, people are not passive processors of information as the one-way flow model implies. People interact with the environment, they can change their perceptions of it with respect to thoughts, beliefs and goals. The machine analogy, however, has significant inadequacies in capturing these qualities. This is summed up by Shotter (1975) in his discussion of the computer as a metaphor for human cognition. He points out that:

> (1) computers are not agents in the processes they execute; (2) they do not undergo qualitative transformations in their structure, neither do they grow their own structure; (3) they are not immersed in the world in the sense of living in a state of exchange with their surroundings; and (4) they have no social character in the sense of being able to help in the completion of one another's projects by understanding one another's goals. In short, compared with other organisms, never mind persons, mechanisms are somewhat limited (Shotter, 1975, pp. 61-62).

Perhaps the major conceptual problem facing the information processing framework at the present time is its inability to objectively cope with the idea of conscious experience. This,

ironically enough, is the major problem which faced the behaviorists. One may believe that people are, in some sense, conscious entities but how can this be conceptualized in an information processing framework? Perhaps the simple answer to this is that one can not. The question is an irresolvable problem for this approach since perhaps the most fundamental difference between people and machines, even so called intelligent machines, is that people are conscious and machines are not. Being conscious gives people the ability to be the agent of their actions, they are in a sense responsible for what they do as opposed to merely responding either to the environment or the subsequent processing of that environment. Behaviorism avoided the consciousness problem by simply denying it. It said that complex behaviors merely had the illusion of looking conscious but in reality were the end result of a chain of reflex arcs originating in the environment. Such an explanation was intuitively unsatisfactory. In a sense, cognitive psychology has been guilty of the same charge. As Underwood (1982) describes:

> We cannot talk about consciousness without talking about experience, but the information processing model of man, one of our strongest conceptual frameworks, does not readily admit the notion of mental experience. Early information processing models of consciousness side-stepped this problem by identifying consciousness with one or more stages of processing - it became a box in the much parodied flowchart. This not only failed to provide an adequate description, but also avoided the question, and provided little in the way of an understanding of how mechanism can incorporate mental experience. (p. viii).

One can conclude from this discussion that the information processing model is running into serious problems in attempting

to conceptualize the nature of people. A root cause of these problems is the adoption of a theoretical framework based on the principles of information theory and cybernetics. There is a growing recognition in the field that a fundamental change is required in the nature of the underlying framework (see Giorgi, 1970; Harre, Clarke, and De Carlo, 1985; Harre and Secord, 1972; Shotter, 1975, 1984). For example, Shotter (1975) argues that a theoretical framework based on the analogy of machine and engineering systems is inappropriate and misleading for the study of people. Shotter believes that to continue psychology in a meaningful and valid way, it is necessary to adopt an entirely new framework. This perspective is discussed at length in Shotter (1975, 1984) and Gauld and Shotter (1977). What is significant here is that these perspectives are grounded in a fundamental concept of communication.

A similar realization that an information processing view of communication processes may be limited or even inappropriate is also present in the communication field. For example, Thayer (1979) has argued that the traditional information theory foundations of communication are simply inappropriate to the study of human behavior and, as a result, the research carried out on the basis of those foundations is highly misleading and ultimately unproductive. As Thayer (1979) points out:

> The ways in which we traditionally and conventionally conceive of communication - those being inadequate and untenable - stand as obstacles to more adequate and more potent ways of conceiving of communication...Those preconceptions, our traditional concepts of communication, are often insidious. "Communication is the 'transfer of

> meaning'" has an appealing ring to it. But since none of our receptors is capable of receiving "meaning", the notion of transfer is a flagrantly untenable one. The typical formula, A -- B = X (A "communicates" something to B with X result), is similarly misleading....It is quite observable that the process is neither linear nor algebraic (p. 10).

Peters (1986) is also critical of the adoption of the information theory foundation, but from an institutional perspective. Peters (1986) writes:

> While communication was trying to carve out an institutional place for itself in universities during the 1950s and 1960s, something else was happening in intellectual life that served to elevate the fortunes of "communication" - information theory. The field's use of information theory illustrates the victory of institution over intellect in the formation of the field, because the theory was used almost exclusively for purposes of legitimation. The interesting ideas that information theory stimulated, in contrast, have generally had little profound or coherent intellectual impact on the field" (p. 83).

The information theory paradigm was adopted as an acceptable and scientifically credible theoretical base for a fledgling field. As Thayer (1979) has argued, human communication is being forced into a framework which was not designed or intended for it. In the context of the information theory paradigm, communication is always the result, an artifact, of behavior. It does not constitute an object of study in itself. As in the field of cognitive psychology, there is a growing awareness that the prevailing paradigms are failing and that conceptual change is necessary. It is through this change that communication and psychology will radically change their relationship.

Information, Communication, and Cognitive Psychology

The basis of this change lies in the conception of "information." Both communication theory and cognitive psychology

locate significant theoretical roots in a certain interpretation of the concept of information which will be referred to here as the Shannon sense of information. The term "information" is problematic in the same sense that the term "communication" is often considered problematic; it has many different connotations and usages in both everyday and academic life (see Machlup, 1983; Ruben 1985). However, the Shannon sense of information is highly specific. As Cherry (1978) points out:

> The word "information" is used, in everyday speech, in different ways. We speak of *useful* information, of *valuable* information, of *factual* information, of *reliable* information, of *precise* information, of *true* information. But none of these expressions occurs in statistical communication theory, which describes information solely as the statistical rarity of signals from an observed source (p. 228).

Here lies the heart of the problem discussed in this paper. Since the Shannon statistical formulation of information has been adopted as the base metaphor, it is very difficult to apply to the sense of information which people use in everyday life which forms the object of study for both communication studies and cognitive psychology.

Cherry (1978) points out that there is a fundamental distinction between the syntactic and the semantic senses of information. Syntactics is the study of signs and the relationships between those signs. It has no concern with the contents of those signs. Thus, for example, a syntactic analysis of language would look at the relationships that exist between noun phrases and verb phrases. The signs and their relationships are the shells by which meanings are carried, but a study of the

shells can be achieved without reference to what those meanings represent. Information in the semantic sense is information about something other than the signs themselves; it refers to objects, people, times, places, or events in the outside world. In other words, the information has content, it carries a shared referent or meaning for those who use it.

The Shannon sense of information is explicitly syntactic. Shannon writes that:

> The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point. Frequently the messages have a meaning; that is they refer to or are correlated according to some system with certain physical or conceptual entities. These semantic aspects of communication are irrelevant to the engineering problem (Shannon and Weaver, 1949, p. 31).

Similarly, Weaver writes that "the word information, in this theory, is used in a special sense that must not be confused with its ordinary usage. In particular, information must not be confused with meaning" (Shannon and Weaver, 1949, p. 8).

The distinction between the syntactic and the semantic has serious implications for a psychology and a communication paradigm that seeks to explain people as information-processors in the syntactic sense, without regard to the meaning of the information they are processing. It is difficult to talk about meanings objectively and scientifically. Like the concept of consciousness, the notion of meaning has a subjective aspect to it which an objective framework like the information processing model cannot satisfactorily capture.

Searle (1984) makes this point explicitly in his critique of cognitivism. The basis of cognitivism, or what has been referred to as the information processing framework, is at first glance quite logical and appealing:

> Thinking is processing information, but information processing is just symbol manipulation. Computers do symbol manipulation. So the best way to study thinking (or...cognition) is to study computational symbol manipulating programs, whether they are in computers or in brains (Searle, 1984, p. 43).

However, Searle (1984) argues that to conceptualize people as machines is inherently invalid because the two systems operate with fundamentally different kinds of information. He points out that machines have the ability to manipulate symbols according to a set of predefined rules, the computer program. However, the system has no understanding of the contents of those symbols. For the computer, the symbols are represented as digital signals (on/off combinations) which stand in predefined relationships with each other. The program will tell the system what to do with these signals, specify the relationships between them, but there is no inherent understanding in the system of the meaning of those signals and their relationships. The system is operating purely at the syntactic level of information. Any notion of meaning must lie outside of the system either in the programmer who wrote the program or the operator who interprets it. The system itself knows nothing, in the semantic sense, of what it is doing.

Yet, given this argument, cognitive psychologists still take as their object of study the rules and procedures by which

information is manipulated when rules and procedures can tell nothing of the meaning of the information being processed. For Searle (1984), this represents a fundamental mistake. He argues that humans act on the basis of meanings and not formal processing procedures:

> We are told that human beings follow rules, and that computers follow rules. But, I want to argue that there is a crucial difference. In the case of human beings, whenever we follow a rule, we are being guided by the actual content or the meaning of the rule. In the case of human rule following, meanings cause behavior (Searle, 1984, p. 46)

The syntactic versus semantic problem can be traced back to the adoption of the term information in its Shannon sense by a discipline seeking to display scientific credibility. By adopting this framework it becomes almost impossible to talk about meaning and content in a meaningful way. Yet, as Searle (1984) points out, it is intuitively obvious that meanings cause behavior.

It is this problem which forms the basis of Shotter's (1975) perspective for the study of human action. Shotter asserts that there is a need to change psychology from the study of rules and procedures. Instead a method is needed that can analyze the symbolic and intersubjective nature of understandings and how these guide social action (as opposed to behavior). The source of such understandings will lie not in the mechanistic procedures of information processing, but in the social context of a culture. Shotter (1975) believes that:

> What has been overlooked in modern psychology, especially in its more extreme mechanistic-behavioristic manifestations as a natural science of behavior, is that man is not simply a being immersed directly in nature but is a being <u>in a culture</u> in nature. (p. 1).

Shotter's perspective is not concerned with how a person processes data in a syntactic sense from an essentially meaningless material environment. Rather it is concerned with how a person comes to understand symbols and meanings in a cultural environment and comes to act on the basis of those understandings.

The fundamental basis of the notion of understanding is "communication," as opposed to "information," the guiding concept of both cognitive psychology and early information theory models of communication. Understanding is always intersubjective, the meanings that guide one person's actions are in many ways the same as another's, and are created and sustained through interaction and culture. In terms of this analysis, one can say that Shotter is advocating an approach based on the semantic sense of information. Such a theory would include accounts of how people interact, how they create and share meanings and mutually understand them, and how immersion in a culture, the totality of all those meanings, can guide and make sense of human behavior, both for the actor and the observer. Thayer (1979) makes a similar claim for the status of communication:

> As one of the two basic life processes, the phenomenon of communication and its concomitants have pervasive implications for all of man's behavior. Whatever it is a man does, *qua* man, can be carried out only in and through communication and intercommunication. It is for this reason inconceivable that man and his behavior and his artifacts and his institutions can ever be adequately and accurately described apart from a full description of the underlying processes of communication and intercommunication, the *sine qua non* of the behavioral sciences (p. 14).

Finally, Dewey (1929/1958), in his critique of the "false psychology" that obscured an adequate understanding of communication processes, argues that "it is safe to say that psychic events, such as are anything more than reactions of a creature susceptible to pain and diffuse comfort, have language as one of their conditions" (p. 169). Dewey (1929/1958) continues:

> What made [psychic events] identifiable objects, events with perceptible character, was their concretion in discourse. When the introspectionist thinks he has withdrawn into a wholly private realm of events disparate in kind from other events, made out of mental stuff, he is only turning his attention to his own soliloquy. And soliloquy is the product and reflex of converse with others; social communication not an effect of soliloquy....Through speech a person dramatically identifies himself with potential acts and deeds; he plays many roles, not in successive stages of life but in a contemporaneously enacted drama. Thus mind emerges (p. 170, emphasis added).

The argument has come full circle. This paper began with Dewey's (1929/1958) observation that the dominant view of communication presupposed a theory of how individuals, the communicators, can process information and derive thoughts, ideas, and feelings which can then be communicated. The paper ends with Dewey's (1929/1958) claim that no thought, observation, or idea is possible without the foundation of the discourse that one person has with another. For Dewey, communication is not conceptualized by the process by which one mind can come to affect another. Rather, communication is the process by which the mind is made possible (see also Mead, 1934).

The objective of this paper was to question the role that communication has been given with respect to a cognitive-

psychological account of human cognition. The traditional relationship between the two disciplines was examined and communication was reclaimed as the foundational mode of explanation for the communication discipline. Communication should be the keystone concept for communication theorists to explain the nature of human communication and ultimately may even become, in Thayer's (1979) view, the *sine qua non* of the behavioral sciences. It certainly should be the *sine qua non* of the discipline of communication studies. Dewey's (1929/1958) statement that "of all affairs, communication is the most wonderful" (p. 166) is one that we, as a field, should definitely take to heart.

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